

WHAT IS CLAIMED IS:

1. An elevator system comprising:
a hoistway defined by a surrounding structure;
an elevator car and counterweight located in the hoistway; and
a drive motor located between the elevator car and a sidewall of the
5 hoistway, the drive motor drivingly coupling and suspending the elevator car and
counterweight via at least one flat rope. X
2. An elevator system as defined in claim 1, further including first
and second support columns located on opposite sides of a hoistway relative to each
other, each of the support columns extending vertically from a bottom portion to a
top portion of the hoistway between the elevator car and said sidewall of the
5 hoistway; and
a support member mounted on and extending generally horizontally
between the first and second support columns at a top portion of the hoistway, and
wherein the drive motor is supported on the support member.
3. An elevator system as defined in claim 2, wherein the
counterweight is located underneath the support member between the elevator car
and said sidewall of the hoistway, and the drive motor includes a drive sheave
drivingly coupling the elevator car and the counterweight via the flat rope.
4. An elevator system as defined in claim 3, further including a
counterweight sheave coupled to a top portion of the counterweight, and at least
one elevator sheave coupled to an underside of the elevator car, the flat rope
having first and second ends fixedly coupled at a top portion of the hoistway, the
5 flat rope extending downwardly from the first end, looping about the counterweight
sheave, extending upwardly and looping about the drive sheave, extending
downwardly and underslinging the elevator car via the at least one elevator sheave,
and extending upwardly and terminating at the second end. 112
Not shown X
5. An elevator system as defined in claim 4, wherein the at least
one elevator sheave includes first and second elevator sheaves located at an
underside of the elevator car and at opposite sides relative to each other.
6. An elevator system as defined in claim 4, wherein the first end
of the flat rope is coupled to the support member.

7. An elevator system as defined in claim 2, wherein the drive motor includes a drive sheave drivingly coupling the elevator car and the counterweight via the flat rope, the counterweight is located underneath the support member between the elevator car and the sidewall of the hoistway, the flat rope has a first end coupled to a top portion of the counterweight and a second end coupled to the elevator car, the flat rope extending upwardly from its first end at the counterweight, looping about the drive sheave, and extending downwardly and terminating at its second end at the elevator car to form a 1:1 roping configuration.

8. An elevator system as defined in claim 2, wherein the first and second support columns respectively include first and second guide members, each of the guide members defining an elevator guide surface extending vertically therealong at least over a length of the support columns corresponding to the path of elevator car travel, and the elevator car defining opposing surfaces shaped to be movably engagable with the elevator guide surfaces as the elevator car moves vertically along the support columns.

9. An elevator system as defined in claim 8, wherein each of the first and second guide members further defines a counterweight guide surface extending vertically therealong at least over a length of the support columns corresponding to the path of counterweight travel, and the counterweight defines additional opposing surfaces shaped to be movably engagable with the counterweight guide surfaces as the counterweight moves vertically along the support columns.

10. An elevator system as defined in claim 1, wherein the drive motor is fixedly coupled to one of a ceiling of the hoistway and a sidewall at a top portion of the hoistway.

11. An elevator system as defined in claim 10, wherein the drive motor is coupled to a sidewall of the hoistway.

12. An elevator system as defined in claim 10, wherein the flat rope has first and second ends each coupled to one of a sidewall and ceiling of the hoistway.

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13. An elevator system as defined in claim 10, wherein the flat rope has first and second ends each coupled to a ceiling of the hoistway.
14. An elevator system as defined in claim 12, wherein the counterweight is located underneath the support member between the elevator car and the sidewall of the hoistway, and including a counterweight sheave coupled to a top portion of the counterweight, at least one elevator sheave coupled to an underside of the elevator car, a drive sheave drivingly coupled to the drive motor, and the flat rope extends downwardly from its first end, loops about the counterweight sheave, extends upwardly and loops about the drive sheave, extends downwardly and underslings the elevator car via the at least one elevator sheave, and extends upwardly and terminates at its second end.
15. An elevator system as defined in claim 1, further including a first support member extending generally horizontally between and disposed at opposite sides of the hoistway at a top portion of the hoistway between the elevator car and the sidewall of the hoistway, a second support member extending generally horizontally between and disposed at opposite sides of the hoistway at a top portion of the hoistway between the first support member and the elevator car, first and second deflector sheaves respectively coupled to the first and second support members, a counterweight sheave coupled to a top portion of the counterweight, at least one elevator sheave coupled to an underside of the elevator car, the drive motor including a drive sheave, and wherein the drive motor and the drive sheave are disposed at a lower portion of the hoistway between the elevator car and a sidewall of the hoistway.
16. An elevator system as defined in claim 15, wherein the flat rope has a first end coupled to the second support member and a second end coupled to one of a ceiling and sidewall of the hoistway at a top portion of the hoistway, the flat rope extending downwardly from its first end, looping about the counterweight sheave, extending upwardly and looping about the first deflector sheave, extending downwardly and looping about the drive sheave, extending upwardly and looping about the second deflector sheave, extending downwardly and underslinging the elevator car via the at least one elevator sheave, and extending upwardly and terminating at its second end.
17. An elevator system as defined in claim 15, wherein the flat rope is coupled at its second end to a ceiling of the hoistway.

18. An elevator system as defined in claim 15, wherein the at least one elevator sheave includes first and second elevator sheaves located at an underside of the elevator car and at opposite sides relative to each other.

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